

What is claimed is:

1. An unbalanced multi-block SBS copolymer with the following structure,



5 wherein B is a butadiene block, S is a styrene block, *l*, *m*, *s* are relative size among the blocks (i.e., large size, middle size and small size, respectively), and * is the tapered block between *m*B1 block and S1 block (i.e., the random copolymer part of a kind).

They also have to satisfy the following related expression.

$$a) 0.01/lB2 \leq mB1 \leq 0.5/lB2 \text{ and } 0.01mB1 \leq sB3 \leq 0.5mB1$$

$$b) 0.5S1 \leq S2 \leq 1.5S1$$

10 c) $5\% \leq * \% \leq 25\%$

In the related expression, the value of B1 and S1 include tapered block for the sake of convenience, and *% means the random styrene content in all the styrene in SBS.

2. The unbalanced multi-block SBS copolymer of claim 1, wherein the contents of styrene range from 20 to 50%.

15 3. The unbalanced multi-block SBS copolymer of claim 1, wherein the MI value of G type is 0.01 to 50 g/min.

4. The unbalanced multi-block SBS copolymer of claim 1, wherein the vinyl content ranges from 8 to 50%.

5. The polymerization method of the unbalanced multi-block SBS copolymer of claim 1
20 is comprised of the following steps.

a) Making *m*B1*S1 block containing tapered block by charging the hydrocarbon solvent, the first butadiene, and the first styrene together and using alkylolithium as an initiator and running the reaction;

25 b) Making *m*B1*S1-*l*B2 block by adding the second butadiene to the above *m*B1*S1 block;

- c) Preparing $mB1*S1-IB2-S2$ by adding the second styrene to the above $mB1*S1-IB2$; and
- d) Making $mB1*S1-IB2-S2-sB3$ of claim 1 by adding the third butadiene to $mB1*S1-IB2-S2$.
- 5 6. The polymerization method of the unbalanced multi-block SBS copolymer of claim 1 is comprised of the following steps.
- a) Making $mB1*S1$ containing tapered block by charging the hydrocarbon solvent, the first butadiene, and a part of the first styrene together and by adding alkylolithium as an initiator, then charging the rest of the first styrene when all the
- 10 monomers are consumed and continuing the reaction;
- b) Making $mB1*S1-IB2$ block by adding the second butadiene to the above $mB1*S1$ block;
- c) Preparing $mB1*S1-IB2-S2$ block by adding the second styrene to the above $mB1*S1-IB2$; and
- 15 d) Making $mB1*S1-IB2-S2-sB3$ of claim 1 by adding the third butadiene to $mB1*S1-IB2-S2$.